APPENDIX 7B BOTANY

Appendix 7B-1
BRIEF DESCRIPTION OF MAJOR INVASIVE EXOTIC SPECIES ON JACKSON DEMONSTRATION STATE FOREST

***Centaurea solstitialis* – yellow star-thistle.** Yellow star-thistle is up to 10 dm tall, deep-rooted annual plant in the sunflower family (*Asteraceae*). It has bristly, lobed leaves that are usually only present before the plant flowers. The flower heads, which are one to many per plant, are armed with stout, spines (10-25 mm long) surrounding the many little yellow flowers. The single-seeded fruits are small (2-4 mm). Seed may be transported by road maintenance equipment and on the undercarriage of vehicles. The movement of contaminated hay and uncertified seed is also an important long-distance transportation mechanism. Seed is transported in lesser amounts and over short to medium distances by animals and humans (Bossard et all 2000). It is native to southern Europe. It is now widespread throughout California in pastures, roadsides, disturbed grasslands, and woodlands. It is spreading in mountain regions of the state below 7,500 feet (2,250 m) (Bossard). It is a problem in moderately warm, exposed areas on fertile, drier soils, including disturbed sites, grasslands, rangeland, hay fields, pastures, roadsides, and recreational areas (DiTomaso et al. 1999 in Bossard).

Star thistle on JDSF is limited to roadside locations in the dryer and warmer eastern portion of the Forest. The highest concentrations are along State Highway 20.

***Cortaderia jubata* – jubata or pampas grass.** Pampas grass is the commonly used name for two invasive species. *Cortaderia jubata* has purplish plumes and is found more frequently in the costal regions than *Cortaderia selloana,* which has plants of both sexes. *Cortaderia jubata* is a large, densely clumped, erect perennial herb in the grass family (*Poaceae*). It has densely-hairy leaf sheaths and leaf blades 2 to 10 cm wide with the upper surface hairy at the base (Hickman 1993). Leaf margins are serrulate and razor-like (*cortadera* is the Argentine word for cutting; Hickman 1993, Munz and Keck 1959). Flowering stems are 2 to 7 meters tall with plume-like inflorescences that are 3 to 10 dm long (Hickman 1993). The primary form of reproduction is the female asexuall fruit. Spread occurs by wind-blown seed or by humans use. Seeds have been reported to disperse over twenty miles under windy conditions (Gadgil et al. 1984 in Bossard). Jubata grass is native to northern Argentina and the Andes of Bolivia, Peru, Chile, and Ecuador, from sea level to elevations above 11,000 feet (3,400 m)(Costas-Lippmann 1977 in Bossard). In California jubata grass occurs in coastal areas (DiTomaso et al. 1999 in Bossard). It has become common in disturbed ditch banks, road cuts, cliffs, and cut-over areas, and eroded or exposed soil below 2,600 feet (800 m) elevation in the coastal fog belt from Humboldt County to Santa Barbara County.

Pampas grass is one of the dominant invasive plants in the JDSF and is found throughout the forest and adjacent lands.

***Cotoneaster spp*. –cotoneaster** *Cotoneaster pannosa* and *C. franchetii* are similar and frequently confused with each other, and some plants invading wildlands are not readily assignable to a particular species. These members of the rose family *(Rosacea*e) are evergreen shrubs, prostrate to erect, to ten feet tall. Clusters of quarter-inch, white or

pink, rose-like flowers appear in summer followed by red berries in autumn and winter. The branches usually zig-zag, producing a complex, interwoven pattern. Birds facilitate dispersal of seeds away from the parent plant (Bossard)**.** The plant also spreads by root sprouts. Native to China, cotoneaster is a popular shrub or small tree in landscaping. In Bossard the distribution was described as scattered counties along the California coast. Cotoneaster can be found in forests, shrublands, and grasslands and can tolerate a wide range of environmental conditions. Their absence in the interior indicates a need for coastal conditions, where frequent cool fogs reduce transpiration (Bossard).

Cotoneaster is common in the region, and frequently observed in the western portion of JDSF.

***Cytisus scoparius* –Scotch broom.** Scotch broom is an evergreen shrub in the legume family (*Fabaceae*). It grows to 2.5 meters tall and has five-angled, green, glabrous stems (hairy when young; Hickman 1993). On young branches there is usually one sessile leaf or three leaflets 0.3-0.7 in (5-18 mm) long (Bossard). Most of the photosyntehtic material is in the stems. Flowers are axillary and generally golden yellow. Plants bloom April through June (Munz and Keck 1959). Seeds disperse explosively and are further spread by ants, animals, or in mud clinging to equipment. Plants can resprout from the root crown after cutting or freezing and sometimes after fire (Bossard and Rejmánek 1994 in Bossard). Sometimes this species is confused with French broom (*Genista monspessulana*), which has pods with hairs all over them, and more than eighty-five percent of its photosynthetic tissue in leaf tissue (Bossard and Rejmánek 1994 in Bossard). Scotch broom burns readily and carries fire to the tree canopy, increasing both the frequency and intensity of fires (Parsons 1992 in Bossard). Plants are native to southern Europe and Northern Africa (Hickman 1993). It is found along the California coast from Monterey north to Oregon border, in the interior mountains of Northern California on lower slopes and as scattered occurrences to San Bernardino County. It is common in disturbed places, such as riverbanks, road cuts, and forest clearcuts, but can colonize undisturbed grassland, shrubland, and open canopy forest below 4,000 feet (1300 m.) (Bossard).

Scotch broom is widely distributed along roadsides in JDSF, and occurs at the highest densities in the western area of the Forest.

***Eucalyptus globosus* –Tasmanian blue gum.** Tasmanian blue gum is an evergreen tree, growing rapidly to 80 meters tall, in the myrtle family (Myrtaceae). The trees have leaves of two kinds: opposite young leaves and alternate mature leaves (which are often narrower and longer than the young leaves; Hickman 1993). Mature leaves are generally narrow-lanceolate, often sickle-shaped, and are generally aromatic. Bark is generally shed in irregular strips and is sometimes persistent at the base. Flowers grow solitary in axils and have cream-white stamens. Fruits are four-ribbed, warty, and greater than 2 cm wide. Native to southeast Australia, this species is the most commonly cultivated and naturalized of the *Eucalyptus* in California. In California it is found below 1,000 feet elevation of the north, central, and south coasts, as well as

inland throughout the Central Valley. It is most invasive on sites subject to summer fog drip. It sprouts readily from the main trunk, from stumps of all sizes and ages, from the lignotuber, and from roots Understory establishment is inhibited by the production of allelopathic chemicals and by the physical barrier formed by large amounts of litter from the trees. The fuel complex formed by this debris is extremely flammable, and under severe weather conditions could ignite spot fires (Bossard).

Tasmanian blue gum was planted as a windbreak in the area of the former Caspar Orchard on JDSF, and has subsequently expanded its range in that area. If disturbance occurs in close proximity to existing eucalyptus stands, then there is the potential for the spread of this species.

***Foeniculum vulgare* – wild fennel.** Wild fennel is a perennial herb, four to ten feet tall, with finely dissected, almost feathery leaves and characterized by a strong anise scent originating from stems and leaves in the carrot family *(Apiacea*e). The flowers are yellow and small (one-quarter inch across), and are clustered in large, rounded, umbrella-like groups (compound umbels), roughly four inches across, that are conspicuous from April through July. Fennel reproduces from both root crowns and seeds (Bossard). Native to southern Europe, wild fennel is widely escaped from cultivation in the Western Hemisphere, and is locally abundant and invasive (Hickman 1996). It is found in most coastal counties from Mendocino south to San Diego. Inland it is found though the Sacramento, Salinas, and San Joaquin valleys and foothills to 2,000 ft. It is fond in fields, ditches, hillside pastures, disturbed areas, coastal scrub, savannas, and the banks of creeks (Bossard).

Wild fennel occurs on the Forest, and has the potential to become a problem there (T .Sholars personal communication).

***Genista monspessulana* –French broom.** French broom is an evergreen shrub in the legume family (Fabaceae). It grows to three meters and has angled silvery-silky-hairy twigs (Hickman 1993). Vegetative characteristics are very similar to Scotch broom except for the vestiture of mature stems, calyces, and fruits. Leaves are ternately once-compound and petioled with generally glabrous upper surfaces and appressed- or spreading-hairy lower surfaces. Four to 10 yellow flowers cluster on short-shoots. Fruits are densely silky-hairy in contrast with Scotch broom that only has hairs on the margins of the pod. Most plants reported as this species may be hybrids. This species establishes a dense, long-lived seedbank, making it difficult to eradicate It burns readily and carries fire to the tree canopy layer, increasing both the frequency and intensity of fires. This species is native to the Mediterranean and the Azores. French broom is found primarily in from Monterey County north to Del Norte and inland in Lake, Solano, and Contra Costa counties, in northern Sierra Nevada foothill counties to 2,600ft. (800 m.) and scattered south to San Diego County. This broom is common on coastal plains, mountain slopes, and in disturbed places such as riverbanks, road cuts, and forest clearcuts, but it can colonize grassland and open canopy forest (Bossard).

French broom is one of the dominant invasive plants in the JDSF and can be found throughout the forest.

***Hedera helix* –English ivy.** English ivy is a shiny-leaved, woody vine belonging to the ginseng family *(Araliaceae).* Creeping juvenile stems have roots at leaf nodes with adventitious rootlets that allow the plant to climb (Bossard). Palmately-lobed leaves are borne on juvenile stems, while those on mature stems are generally entire. The white flowers clustered on the ends of stems are produced in fall, and the fruits are dark blue or purplish drupes. Birds disseminate the seeds and it is spread vegetativly as well. Once established, it spreads quickly by vegetative means. It differs from cape ivy (Delairea odorata) in having leaves that are evergreen in all climates, with a deep cleft at the leaf base that makes the lower lobes appear larger than the others. English ivy is native to England, Ireland, the Mediterranean region, and northern Europe west to the Caucasus Mountains. English ivy is a popular evergreen vines in cultivation, and has been planted to control soil erosion. In California it is found in forest habitat south to at least Santa Cruz, then scattered occurrences south along the coast to San Diego and inland to Shasta and Butte counties. It is a serious problem in the coastal Pacific Northwest. English ivy is generally found in open forests, especially those with a deciduous component, from sea level to 3,300 feet (1,000 m) elevation. It is especially common in forests near urban areas. English ivy will invade riparian zones (Bossard).

English ivy is known to occur in isolated locations on the Forest. Some occurrences are found in areas with closed canopy in WLPZ.

***Mentha pulegium* –pennyroyal.** Pennyroyal, a member of the mint family *(Lamiaceae),* has upright to trailing stems producing relatively flowering spikes one foot or taller, with lavender-colored flowers arranged in progressively larger globular flower heads down the stalk. All parts of the plant have a strong characteristic minty odor. It has hairy calyces containing nutlets that are well adapted to dispersal by sticking to animals. It has been grown for its purported medicinal or herbal values (Duke 1985 in Bossard). Daughter plants develop along solons, spreading it vegetatively locally and forming new patches if the stolons are fragmented, as by cultivation (Parson 1992 in Bossard). Pennyroyal is native to Ireland, across southern and central Europe, to the Ukraine (Tutin et al. 1976 in Bossard). It has been found in Sierra foothills, Central Valley, and most coastal counties from the Mexican border to Oregon. It is locally abundant moist meadows, vernal pools, along roadsides, and on the perimeters of freshwater and brackish marshes (Bossard). It is common as an obligate wetland indicator species in seasonally inundated soils of valley bottomlands, usually below 1,640 feet (500 m) elevation (Reed 1988 in Bosard).

T. Sholars reports that pennyroyal occurs with enough frequency in JDSF to pose a threat to native vegetation on sites favorable to this species.

***Rubus discolor* –Himalayan blackberry.** Himalayan blackberry is a robust, evergreen, arched bramble in the rose family (*Rosaceae*). Its brambles can grow to 3 meters tall (Munz and Keck 1959). Stems are 5-angled, 5 to 15 mm in diameter, and

contain many prickles (Hickman 1993). Leaves are compound (often with five leaflets but sometimes three), sharply toothed, and white below. Inflorescences are many-flowered panicles of white to pink flowers. The large, succulent fruits are highly favored and are comprised of shiny black drupelets (Hickman 1993, Munz and Keck 1959). Seeds are readily dispersed by mammals and birds. It also spreads vegetatively by rooting of cane tips. It grows at elevations of over 6,000 feet in Arizona and to 5,000 feet in Utah (Bossard). Himalayan blackberry is native to western Europe (Hickman 1993). Himalayan blackberry occurs in California along the coast in the Coast Ranges, Central Valley, and the Sierra Nevada (Dudley and Collins 1995 in Bossard). It forms impenetrable thickets in wastelands, pastures, forest openings, and in riparian areas.

Himalayan Blackberry is fairly common on the forest. It spreads in mesic, somewhat open areas of JDSF.

Senecio mikanoides* –Cape-ivy.** Cape-ivy (also known as German-ivy and as ***Delairea odorata) is a perennial, shiny-leaved vine in the sunflower family (Asteraceae). , Leaves are palmately 5-9 lobed with a green to yellow-green color and a distinct odor. Each flower is a yellow, round discoid head the size of a dime. Flowers are arranged in groups of twenty or more. In California it spreads vegetatively by whole or fragmented solons. Cape ivy is native to moist mountain forests of South Africa, where it has a limited natural range. It is typically found below 660 feet (<200 m) elevation. In 2000, Bossard (et al) described the range as costal forests from Del Norte County to San Diego. It prefers shady, disturbed sites with year-round moisture including costal scrublands, seasonal wetlands, coastal forests in the fog belt forests and, stream banks (Bossard).

Cape ivy is known to occur on JDSF at two isolated sites.

***Tamarix* spp.– tamarisk or salt cedar** Four invasive Tamarix species have been identified in California: *T. ramosissima*, *T. chinensis*, *T. gallica*, and *T. parviflora (Bossard)*. Tamarisk is in its own family, the *Tamaricacea*e. All four species are many-branched shrubs or trees less than twenty-six feet tall with small scale-like leaves, Leaves have salt glands, and salt crystals can often be seen on leaves. Small white to deep pink flowers are densely arranged on racemes. The bark is reddish brown. The small seeds are easily dispersed long distances by wind and water (Brossard). Saltcedar can reproduce vegetatively as well. *Tamarix ramosissima* is found throughout much of central Asia, from the Near East around the Caspian Sea, through western China to North Korea (Baum 1978 in Bossard). It was planted widely for erosion control, as a windbreak, for shade, and as an ornamental. It is known from the deserts of California up into the Sacramento Valley and the central and south coasts. Saltcedar can become abundant where surface or subsurface water is available for most of the year, including stream banks, lake and pond margins, springs, canals, ditches, and some washes. In more arid regions of the state it is associated with dramatic changes in groundwater availability, fire frequency, and native plant community (Bossard).

Saltcedar is known to occur on JDSF and potentially could become invasive in moist areas.

***Ulex europaea* –gorse.** Gorse is a heavily armed, densely branched shrub in the legume or pea family (Fabaceae). It grows to 2 meters tall and has hairy twigs when young that become stiff, thorn-like, and intricately intertwined (Hickman 1993). Leaves become awl-like stiff spines as they mature. Inflorescences are axillary clusters with few yellow flowers. Fruits are densely hairy. The seeds are too heavy to be dispersed by wind, and may be spread by ants, quail, water, and human activity. Seeds retain long-term viability, and the plant regenerates rapidly from seeds and stumps after disturbances such as brush clearing or fires (Bossard). Old plants are apparently very flammable. Gorse is native to central and Western Europe, where it has long been cultivated as hedgerows. It has been established in Mendocino County for 100 years (Bossard). Elevation range is up to 400 meters. It can be found in all coastal counties and in the northern Sierra Nevada foothills. It invades infertile or disturbed sites, sand dunes, gravel bars, fencerows, overgrazed pastures, logged areas, and burned-over areas (Bossard).

Gorse exists in low numbers towards the western end of JDSF.

Appendix 7B-2

SPECIES DESCRIPTIONS FOR RARE, THREATENED, ENDANGERED, AND SENSITIVE PLANT AND LICHEN SPECIES POTENTIALLY OCCURRING ON JDSF

Note: Distribution information including quads current as of CNDDB June 5, 2004, CNPS June 6, 2004.

Arctostaphylos mendocinoensis -*Pygmy manzanita*

Pygmy manzanita is a low-growing, mat to mound-forming evergreen shrub in the heath family (Ericaceae). Stems are covered in a peeling, reddish-brown bark, and the twigs are sparsely fine-bristly (Hickman 1993). The leaves are five to 12 mm long, three to seven mm wide, oblong-elliptic, base obtuse and margin entire. The upper surface is convex, dark green, shiny, and glabrous. Small urn-shaped flowers are borne erect on densely flowered inflorescences in January (Hickman 1993). This species occurs in association with Mendocino pygmy forest on acidic (podzolized), sandy-clay soils within closed-cone coniferous forest from 90 to 200 meters (CNPS 2001, Hickman 1993).

There is only one known occurrence of pygmy manzanita. This site is in the Mendocino USGS 7.5' quadrangle in Mendocino County (CNPS 2001) and is mapped to overlay the western side of the forest both within and outside JDSF.

The current population status and trend for pygmy manzanita are uncertain but presumed to be declining. There is taxonomic uncertainty regarding this species, it may be undistinguishable from *A. nummularia* (pers. com. T. Sholars 2004) Given its association with pygmy forest type habitat, activities associated with urban development, road construction or maintenance, and timber harvesting could adversely affect this species through habitat modification and direct injury to plants.

Astragalus agnicidus - Humboldt milk-vetch

Humboldt milk-vetch is a tall, three to nine dm, erect perennial herb in the legume family (Fabaceae). Leaves are once odd-pinnate and are composed of 13 to 27 sparsely-hairy leaflets (Hickman 1993). Racemes contain ten to 40 white pea-like flowers. Fruits are flat and hairy. This species blooms from June to September (CNPS 2001). Habitat includes open soil in woodlands, around 750 meters in elevation (Hickman 1993), disturbed openings in the Broadleaved Upland Forest (Skinner and Pavlik 1994), disturbed woods around 750 meters in elevation (Munz and Keck 1959), and North Coast Coniferous Forest and disturbed areas from 195 to 750 meters in elevation (CNPS 2001).

Known occurrences for Humboldt milk-vetch include Humboldt and Mendocino Counties (CNPS 2001). In Mendocino County it has been found on the Noyo Hill, Gualala,

Sherwood Peak, Dutchman's Knoll, Westport, Lincoln Ridge, Northspur, Hales Grove, Bailey Ridge, and Cahto Peak USGS 7.5' quadrangles. This species is known upper slope areas on JDSF. The majority of the plants are in disturbed areas near ridge top. Another occurrence has been identified approximately 5 miles to the east.

Humboldt milk-vetch was known from one location and was listed as state endangered. Since 1999 multiple occurrences have been found in Mendocino County, the first at JDSF. Though Humboldt milk-vetch is an early colonizing species that utilizes forest and woodland openings, activities associated with timber harvesting, road construction and maintenance, and rural or urban development could adversely affect this species through loss of suitable habitat, habitat modification, increased competition from invasive weeds and direct injury to plants.

Boschniakia hookeri **- Small ground-cone**

The small ground cone is a parasitic rhizomatous perennial herb in the bloom-rape family (Oroanchaceae). It is a non-green root parasite with roots are modified into corm thickening around host roots. The small ground-cone is a fleshy plant with overlapping scales in a spike. Flowers with fused corolla emerge from the scales and flower April though August. (Hickman 1993). Spent plants can be sometime observed from prior years. It is parasitic on members of the heath family (Ericaceae) specifically *Gaultheria shallon*, *Vaccinium* spp. and possibly *Arctostaphylos* spp. Habitat includes: Closed-cone Coniferous Forest, North Coast Coniferous forest including pygmy forest intergrading with redwood and Douglas fir, open woods, shrubby palaces. Elevation ranges 90 from 885 meters (CNDDB, 2004).

Small ground cone has been found in Del Norte, Humboldt, Mendocino, and Marin Counties and in Oregon and Washington states. It has been found in Mendocino County at Purdy's Garden and Elk USGS 7.5' quadrangles. It is not known from JDSF.

Population trend is unknown. It is not considered rare outside of California. Threats are timber harvest and road maintenance (CNDDB, 2004). Rural development is also occurring in the pygmy-north coast conifer forest intergrades.

Calamagrostis crassiglumi - **Thurbers reed grass**

Thurbers reed grass is a perennial rhizomatous herb in the Grass family (Poaceae). In The Jepson Manual (Hickman, 1993) this species is described as *Calamagrostis stricta* spp. *inexpansa*. Stems are 40 to 120 cm tall with smooth blades. The inflorescence is a purplish panicle (Abrams, 1940) with short branches that make the head look spike like (Hickman, 1993). It blooms from May though July. The elevation range is from 10 to 45 meters. Habitat includes; coastal scrub (mesic), marshes and swamps (freshwater) and fens. CNDDB (2004) notes it is usually found in marshy swales surrounded by grassland or coastal scrub.

Thurbers reed grass is found in; Del Norte, Humboldt, Mendocino, Sonoma, and Marin Counties, Washington State, and elsewhere. Mendocino County records of occurrence are for Inglenook and Mendocino USGS 7.5' quadrangle (CNDDB, 2004). It is not known from JDSF.

Population trend is unknown. Eleven occurrences are listed in California (CNDDB, 2004) but it is not listed as rare in other states. Threatened by grazing at Pt. Reyes NS (CNPS 2004) and invasive species (CNDDB, 2004). Ground disturbing activities including road maintenance, timber harvest and suburban development would be threats as well.

Campanula californica - Swamp harebell

Swamp harebell is a perennial herb in the bellflower family (Campanulaceae) that grows from slender underground rhizomes. The stems are simple or few-branched and stems and leaf margins have recurved stiff hairs, feeling rough to the touch (Hickman 1993, Munz and Keck 1959). The plants reach 10 to 30 cm and produce pale blue, bell-shaped flowers from June through October (CNPS 2001, Hickman 1993). This species is found in Coastal Prairie, Closed-cone Pine Forest, North Coastal Coniferous Forest / mesic, Bogs and Fens, Marshes and Swamps, Meadows and seeps, and elevations from one to 405 meters (CNPS 2001).

Swamp harebell occurs in Mendocino, Marin, and Sonoma Counties and was extirpated from Santa Cruz County (CNPS 2001). In Mendocino County, the species is known to occur within the Albion, Elk, Fort Bragg, Gualala, Inglenook, Mathison Peak, Mendocino, Navarro, Noyo Hill, Point Arena, and Saunders Reef USGS 7.5' quadrangles (CNPS 2001). Swamp harebell is known on the JSDF from near streams in the west part of the forest and a mesic upland site.

The population status and trend of the swamp harebell are uncertain. Though a population in Sonoma County was observed densely covering an area of approximately 1,000 square feet, many of the documented occurrences of swamp harebell are represented by very few plants (CNPS 2001). The swamp harebell is considered threatened by grazing, development, marsh habitat loss, and logging (CNPS 2001). Impacts to habitat likely include development, road construction and maintenance, and activities that significantly alter hydrologic conditions within watersheds. Activities associated with timber harvesting and road construction or maintenance could affect this species through habitat modification and direct injury to plants.

Carex arcta - Northern clustered sedge

Northern clustered sedge is a perennial, cespitose, grass-like herb of the sedge family (Cyperaceae). Stems and leaves are densely clustered, and plants grow to 80 cm tall

(Munz and Keck1959). Leaf blades are two to four mm wide with a sparsely red-dotted lower sheath (Hickman 1993, Munz and Keck 1959). The inflorescence is dense with seven to fifteen distinct spikelets. Each spikelet is 1.5 to 3 cm long and is gynaecandrous (the lower more or less separate). The plants bloom from June to August (CNPS 2001). Habitat includes wet places, especially bogs (Hickman 1993), wet soils of bogs and marshes (Munz and Keck 1959), and Bogs and fens, mesic North Coast coniferous forest (CNPS 2001), and elevations range from 60 – 1400 meters (CNPS 2001).

Northern clustered sedge occurs in Del Norte, Humboldt, Mariposa, and Tulare counties (CNPS 2001). CNPS records are unclear as to whether this species occurs in Mendocino County. Northern clustered sedge is also known from Idaho, Oregon, and Washington and is more widespread outside of California. It is not known from the JDSF.

The population status and trend of the northern clustered sedge are uncertain. Impacts to habitat likely include development, road construction and maintenance, and activities that significantly alter hydrologic conditions within watersheds. Activities associated with timber harvesting and road construction or maintenance could affect this species through habitat modification and direct injury to plants.

***Carex californica* - California sedge**

California sedge is a perennial, rhizomatous herb of the sedge family (Cyperaceae). It is scarcely cespitose, and the stems are 20 to 70 cm, erect, and much longer than leaves (Hickman 1993, Munz and Keck 1959). The leaves are two to five mm wide, flat, gray-green, and glandular-papillate. Plants are monoecious with two to six spikelets; the terminal spikelet is staminate, linear, 1.5 to 3.5 cm in length, and usually long-stalked. The lateral spikelets are pistillate, generally linear-oblong, one to four cm long, and the lowest spikelet has a long-sheathing bract. This species blooms from May to August (CNPS 2001). California sedge is found in coastal flats (Munz and Keck 1959), meadows, drier areas of swamps (Hickman 1993), Bogs and fens, Closed-cone coniferous forest, Coastal prairie, Meadows, Marshes and Swamps (margins) at elevations ranging from 90-335 meters (CNPS 2001).

California sedge is known from Mendocino County and may occur in Sonoma County as well. It is also known from Idaho, Oregon, Washington, and other states. California sedge is known from the Albion, Elk, Eureka Hill, Fort Bragg, Mathison Peak, Mendocino, Noyo Hill, Point Arena USGS 7.5' quadrangles. It has been found in the JDSF in the western part of the forest near closed cone and pygmy forest.

Current population status and trend for California sedge are unknown. Reported threats to the species include road building, residential development, over-grazing, and impacts associated with illegal dumping and vehicle use (CDFG 2001, CNDDB 2004). Impacts to habitat likely include development, road construction and maintenance, and activities

that significantly alter hydrologic conditions within watersheds. Activities associated with recreation, timber harvesting, and road construction or maintenance could affect this species through habitat modification and direct injury to plants.

Carex comosa - **Bristly sedge**

Bristly sedge is a short rhizomed perennial herb found in wet paces from the sedge family (Cyperaceae). The plant is 50 to 100 cm high. Inflorescences are characterized by lower spikelets on long nodding stalks (Hickman 1993). Blooms from May though September (CNPS, 2004). Habitat is described as marshes and swamps including lake margins, coastal prairie, and valley & foothill grassland. Elevation ranges from 5 to 1005 meters.

Bristly sedge Has been found in; Contra Costa, Lake, Mendocino, San Bernardino, Santa Cruz, San Francisco, Shasta, San Joaquin, and Sonoma Counties, and Idaho, Oregon, Washington, and elsewhere. In Mendocino County has been found at Hopland and Cow Mountain USGS 7.5' Quadrangles. It is not known from the JDSF.

Location, rarity, and endangerment information are needed. Fairly widely distributed, but apparently rarely collected. Endangered in ID, endangered in OR, and state-listed as Sensitive in WA. Threatened by marsh drainage (CNPS 2001). Activities associated with recreation, timber harvesting, and road construction or maintenance could affect this species through habitat modification and direct injury to plants.

Carex livida **-Livid sedge**

Livid sedge is a perennial rhizomatios herb of the sedge family (Cyperaceae). Flowering stems range from 15—60 cm tall with blades 1 – 3.5 mm wide (Hickman 1993). The lowest spikelet bract sheath is grater than 6 mm, and pistillate bracts are red-brown. Habitat includes bogs, fens and swamps (Hickman 1993, CNPS 2001).

Livid sedge is known from one occurrence in California in Mendocino County. It was found in the Mendocino USGS 7.5' Quadrangle approximately one mile south of JDSF in a bog, and has since been extirpated in California.

Though extirpated in California (CNPS2001), this species should be included in survey efforts. Impacts to habitat likely include development, road construction and maintenance, and activities that significantly alter hydrologic conditions within watersheds.

***Carex saliniformis* - Deceiving sedge**

Deceiving sedge is a perennial rhizomatous herb of the sedge family (Cyperaceae). It is loosely cespitose with flowering stems five to 15 cm tall and leaf blades two to five mm wide (Abrams 1940 Vol. I, Hickman 1993). Each plant has three or four pistillate spikelets present and a solitary staminate spikelet. The pistillate florets have two stigmas each. The lowest pistillate floret bracts are often leaf-like and green with a white or red-brown margin. The lowest staminate floret bract is often greater than 1/3 the spikelet length. Deceiving sedge blooms in June (CNPS 2001). Habitat includes Moist to wet, open areas at less than 120 meters in elevation (Hickman 1993), and Coastal prairie, Coastal scrub, Meadows, Marshes and Swamps (coastal salt or freshwater)/mesic at up to 230 meters in elevation (CNPS 2001).

Known occurrences of deceiving sedge include Humboldt, Mendocino, Santa Cruz (extirpated), and Sonoma Counties (CNPS 2001). In Mendocino it is located on the Elk, Eureka Hill, Fort Bragg, Inglenook, Mallo Pass Creek, Mendocino, Noyo Hill, and Point Arena USGS 7.5' quadrangles. It is not known from the JDSF.

Current population status and trend for deceiving sedge are unknown. Impacts to habitat likely include development, road construction and maintenance, and activities that significantly alter hydrologic conditions within watersheds. Activities associated with timber harvesting, road construction and maintenance, and rural or urban development could adversely affect this species through loss of suitable habitat, habitat modification, and direct injury to plants.

***Carex viridula var. viridula* - Green sedge**

Green sedge is a perennial, herbaceous, grass-like member of the sedge family (Cyperaceae). The plants are densely cespitose in small clumps and the rootstock is very short (Hickman 1993, Munz and Keck 1959). The stems are five to 40 cm tall and erect. The leaves are 1.5 to three mm wide with blades channeled. The monoecious plants bear dense inflorescences with terminal, and often one to two subsidiary, staminate spikelets that are one to two mm wide and linear. The lateral spikelets are sessile (lowest one stalked and erect), oblong to round, and five to 10 mm long. The blooming period is June through September (CNPS 2001). Habitat includes low wet ground near the coast, North Coast Coniferous Forest (Munz and Keck 1959), Sphagnum Bogs (Hickman 1993), Bogs and fens, Marshes and Swamps (freshwater), and mesic North Coast coniferous forest (CNPS 2001). Elevations range from zero to 1600 meters (Hickman 1993, CNPS 2001). Most known California locations are in or near lagoons or bogs (CNPS 2001).

Known occurrences of green sedge include Del Norte, Humboldt, and Mendocino counties (CNPS 2001). In Mendocino county, green sedge is known from the Inglenook USGS 7.5' quadrangle. It is not known from the JDSF.

Current population status and trend for green sedge are unknown. Impacts to habitat likely include development, road construction and maintenance, and activities that significantly alter hydrologic conditions within watersheds. Activities associated with timber harvesting, road construction and maintenance, and rural or urban development could adversely affect this species through loss of suitable habitat, habitat modification, and direct injury to plants.

Cupressus goveniana ssp. pigmaea - Pygmy cypress

Pygmy cypress is a evergreen, closed-cone coniferous tree in the Cypress family (Cupressaceae). Trees grow one to two meters in sterile soil, and 10 to 50 meters in rich soil, and have gray-brown shredding bark (Hickman 1993, Munz and Keck 1959). Cones are serotinous and release seeds after fire exposure, on hot humid days, or as the result of desiccation due to old age or death of the tree. Bare mineral soil conditions are necessary for maximal germination and seedling establishment. Habitats include closed-cone pine/cypress forest, coastal terraces (Hickman 1993, Munz and Keck 1959), coastal coniferous forest (Stuart and Sawyer 2001), and podzol-like soils in Closed-cone coniferous forest (CNPS 2001). Elevations range from 30-500 meters (CNPS 2001).

Pygmy cypress occurs in Sonoma and Mendocino Counties (CNPS 2001). In Mendocino County, this taxon occurs in the Comptche, Elk, Eureka Hill, Fort Bragg, Gualala, Mathison Peak, Mendocino, Noyo Hill, Point Arena, and Saunders Reef USGS 7.5' Quadrangles. Pygmy cypress is found in pygmy forest and in nearby early seral upland redwood fir forests in the western part of the JDSF.

The current population status and trend are uncertain, but the pygmy cypress is considered at risk from development, vehicles, and fire suppression (CNPS 2001). Activities associated with timber harvesting and road construction or maintenance could affect this species through habitat modification and direct injury to plants. Frequent stand-replacing fires may eliminate pygmy cypress groves entirely if fire returns at an interval shorter than that required for young trees to produce seed-bearing cones.

Erigeron supplex - Supple daisy

Supple daisy is a short (15 to 40 cm) a perennial herb from the Aster family (Asteraceae). The yellow inflorescence is made of discoid (similar sized) flowers and blooms May though July. Habitat includes Coastal bluff scrub, Coastal prairie. Some occurrences have been found on rocky outcroppings and grasslands associated with closed cone pine forest species. Elevation ranges from 10 to 50 meters.

This species has been found in Humboldt, Mendocino, Sonoma, and Marin Counties with a total of 12 occurrences (CNDDB 2003). In Mendocino County has been found in;

Saunders Reef, Gualala, Point Arena, and Mendocino USGS 7.5' quadrangles. It is not known from the JDSF.

Threatened by coastal development (CNPS 2001). Activities associated with timber harvesting, road construction and maintenance, and rural or urban development could adversely affect this species through loss of suitable habitat, habitat modification, and direct injury to plants. Activities that threaten these habitat types include recreation and development.

Erythronium revolutum - Coast fawn lily

Coast fawn lily is a perennial, bulbiferous herbaceous member of the lily family (Liliaceae). Leaves are 10 to 25 cm, widely lanceolate to ovate, entire to wavy-margined, and have brownish-red or white mottles (Hickman 1993, Munz and Keck 1959). Inflorescences have one to three pink to white flowers. Perianth segments are 25 to 40 mm, lance-linear, acuminate to acute, and often have involute margins and transverse yellow bands near the base. This species blooms March through June (CNPS 2001). Habitats include Streambanks and wet places in woodlands (Hickman 1993), margins of swamps and bogs in redwood and mixed evergreen forest (Munz and Keck 1959), and Bogs and fens, Broadleaved upland forest, mesic North Coast coniferous forest, and streambanks (CNPS 2001). Elevation range is zero to 1065 meters (CNPS 2001).

Coast fawn lily is known from Del Norte, Humboldt, Mendocino, Siskiyou, and Sonoma counties (CNPS 2001). It is also found in Oregon (watch list), Washington (state-listed species), and other states. In Mendocino, coast fawn lily occurs on the Comptche and Piercy USGS 7.5' quadrangles. It is not known from the JDSF.

The current population status and trend for coast fawn lily are unknown. Possible threats include development, logging, road construction and maintenance, and collection. Impacts to habitat likely include development, road construction and maintenance, and activities that significantly alter hydrologic conditions within watersheds. Activities associated with timber harvesting and road construction or maintenance could affect this species through habitat modification and direct injury to plants.

Fritillaria roderickii - Roderick's fritillary

Roderick's fritillary is a perennial, bulbiferous herb of the lily family (Liliaceae). Stems are one to 4.5 dm with three to seven alternate, often crowded leaves (Hickman 1993). Leaves are eight to 40 mm wide and oblong to narrowly ovate. Flowers are nodding and have perianth parts of 1.8 to four cm that are narrowly ovoid, dark brown to greenish purple with almond-shaped cream spot, and without unpleasant odor (as opposed to the similar *F. agrestis*). Plants bloom March through May (CNPS 2001).

Habitats include Coastal bluff scrub, Coastal prairie, and Valley and foothill grassland (CNPS 2001). Elevation range includes 15-120 meters (CNPS 2001).

Roderick's fritillary is known from fewer than ten occurrences in Mendocino County. Plants introduced in Mendocino and Sonoma counties (CNPS 2001). Occurrences are listed for the Boonville, Fort Bragg, Laughlin Range, Philo, Point Arena [extirpated], and Saunders Reef USGS 7.5' quadrangles. It is not known from the JDSF.

The population is in decline (CDFG 2000b?). The taxonomic validity of this species has been questioned, and further study is needed. *F. roderickii* is a synonym of *F. biflora* var. *biflora* in *The Jepson Manual*. USFWS uses the name *F. grayana*. Roderick's fritillary is threatened by road maintenance, residential development, and erosion (CNPS 2001). Activities associated with timber harvesting and road construction or maintenance could affect this species through habitat modification and direct injury to plants.

***Gilia capitata* ssp. *pacifica* - Pacific gilia**

Pacific gilia is a tap rooted annual forb in the phlox family (Polemoniaceae). Stems are 25 to 50 cm tall. Leaves are 2 times pinnate and more or less linear with narrow lobes. Flowers are in a terminal spheric head. The corolla lobes are 1-2 m wide and pale to bright blue violet and the calyx membrane is blue violet. Stamens are equal to or longer than the corolla lobes. Fruit is ovoid and with 10-20 seeds. (Hickman, 1993). It is found in costal bluff, slopes, coastal bluff scrub, coastal prairie valley and foothill grassland (CWHR, Hickman, CNPS). Elevation rage is 5 to 300 meters.

Pacific gilia is known from Humboldt, Del Norte and Mendocino County and in Oregon. Mendocino County occurrences are listed in Albion, Elk, Fort Bragg, Mendocino, Point Arena, and Willits USGS 7.5 quadrangles. It is not known from the JDSF.

Population trend for Pacific gilia is unknown. Threatened by development and recreation activities (CNPS 2001). Ground disturbing activities including road maintenance, timber harvest and suburban development would be threats as well.

***Glyceria grandis* - American manna grass**

American manna grass is a perennial rhizomatous plant in the grass family (Poaceae). Stems are from 90 to 200 cm with prominent midribs on the blades. The inflorescence panicle like with spreading branches. The spikelets are ovoid with palea tip widely notched (Abrams 1940). It blooms from June though August (CNPS 2001). Habitat includes; bogs, fens, meadows, seeps, marshes, swamps, streambanks and lake margins (Hickman 1993)(CNPS 2001). Elevation ranges from 15 to 1980 meters.

This species has been found in Humboldt, Mendocino, Mono and Placer Counties (CNDDB) and in British Columbia and Eastern United States (Hickman 1993). In Mendocino County occurs at Point Arena USGS 7.5' quadrangle. It is not known from the JDSF.

The current population status and trend for American manna grass are unknown. No recent reports are continued in CNDDB (2004). The sole Mendocino occurrence was documented in 1949. Impacts to habitat likely include development, road construction and maintenance, and activities that significantly alter hydrologic conditions within watersheds. Activities associated with timber harvesting and road construction or maintenance could affect this species through habitat modification and direct injury to plants.

***Hesperolinon adenophyllum* - Glandular western flax**

Glandular western flax is a finely branching annual forb in the flax (Linaceae) family. It is 10 to 50 cm tall. Leaves are lace shaped, clasp the stems and have stalked gland tipped teeth. Flowers have yellow petals sometimes with orange streaks and fade to white. Habitat includes Serpentine, chaparral, cismontane woodland, valley and foothill grassland. Microsite includes serpentine soils, genially serpentine chaparral. Elevation ranges from 150 to 1315 meters.

This species has been found only in Humboldt, Lake, and Mendocino counties. In Mendocino County is found on the Burbeck, Greenough Ridge, Highland Springs, Potter Valley, Sanhedrin Mnt., and Willits USGS 7.5' quadrangle. It is not known from the JDSF.

The current population status and trend for *g*landular western are unknown. It is threatened by geothermal development, recreation and grazing (CNPS 2001). Impacts to habitat likely include development, road construction and maintenance. Activities associated with timber harvesting and road construction or maintenance could affect this species through habitat modification and direct injury to plants.

***Horkelia tenuiloba* - Thin lobbed horkelia**

Thin lobbed horkelia is a perennial herb Rose Family (Rosaceae). It is loosely matted with compound leaves that have a resinous order. The leaflets are divided more than ½ way to the base into oblanceolate lobes. The white flowers have five petals, a hairy hypanthium inner wall and bloom between May and July. Habitat includes: chaparral, coastal scrub, broadleaved upland forest, and valley & foothill grassland. Site descriptions include damp hillsides, sandy soils and mesic openings. Elevation ranges from 50 to 500 meters.

Found also in Mendocino, Sonoma and Marin Counties (CNDDB 03) In Mendocino County found at Gualala, Willis ridge, Point Arena, and Saunders Reef quads. It is not known from the JDSF.

The current population status and trend for thin lobbed horkelia are unknown. Impacts to habitat likely include development, road construction and maintenance. Activities associated with timber harvesting and road construction or maintenance could affect this species through habitat modification and direct injury to plants.

Juncus supiniformis - Hair-leaved rush

Hair-leaved rush is a perennial, cespitose herb of the Rush family (Juncaceae). It is generally submerged when young and has matted many-branched rhizomes (Hickman 1993, Munz and Keck 1959). Stem nodes are often rooting (Hickman 1993). Leaves are much longer than the stems, submerged, less than 30 cm long, hair-like (approximately one mm wide), and have membranous sheath appendages (Hickman 1993, Munz and Keck 1959). Plants flower April to June as water recedes (CNPS 2001, Hickman 1993). Habitat includes marshes, ponds, ditches (Hickman 1993), Bogs and fens, ponds near coast, Closed-cone Pine forest (Munz and Keck 1959), and Marshes and Swamps (freshwater) near the coast (CNPS 2001). Elevations range from 20 to 100 meters (CNPS 2001).

Hair-leaved rush is known from Del Norte, Humboldt, and Mendocino counties and Oregon and other states. In Mendocino County, locations are recorded on the Fort Bragg and Mendocino USGS 7.5' quadrangles. It is not known from the JDSF.

Population status and trend for hair-leaved rush are unknown. Impacts to habitat likely include development, road construction and maintenance, and activities that significantly alter hydrologic conditions within watersheds. Activities associated with timber harvesting and road construction or maintenance could affect this species through habitat modification and direct injury to plants.

Lasthenia macrantha ssp. *bakeri* - Baker's goldfields

Baker's goldfields is a perennial (rarely annual) herb in the Sunflower family (Asteraceae). Stems are erect and simple, sometimes few-branched, one to four dm tall (Hickman 1993, Munz and Keck 1959). Leaves are generally narrow (less than two mm), clustered in a basal rosette, and are generally gone before flowering. Inflorescences are radiate, having both ray and disk flowers. Ligules and disk flowers are generally yellow. Plants flower from April to October (CNPS 2001). Habitats include grasslands, woods near coast (Hickman 1993), Grassy forest openings, Closed-cone Pine Forest (Munz and Keck 1959), and Closed-cone coniferous forest (openings), and Coastal scrub (CNPS 2001). Elevations range from zero to 520 meters (CNPS 2001, Hickman 1993).

Baker's goldfields is known from Mendocino and Marin counties. It has been extirpated in Sonoma County. Baker's goldfields is known from the Albion [extirpated], Fort Bragg, Gualala [extirpated], Mendocino, Point Arena, and Saunders Reef USGS 7.5' quadrangles in Mendocino county. It is not known from JDSF.

Population status and trend for Baker's goldfields are unknown. Activities associated with timber harvesting and road construction or maintenance could affect this species through habitat modification and direct injury to plants.

***Lilium maritimum* - Coast lily**

Coast lily is a perennial herbaceous plant in the lily family (Liliaceae). Plants are less than 2.5 dm with leaves basal, scattered, or in one to four whorls (Hickman 1993, Munz and Keck 1959). Leaves are generally dark green and oblanceolate to some-what linear with out a wavy margin. Flowers are bell-shaped and dark red to red-orange with darker spots concentrated mid-basally. Perianth segments are three to five cm and are strongly recurved in the upper one third. Plants flower May to July (CNPS 2001). Habitats include coastal prairie or scrub, bogs, gaps in closed-cone pine forest (Hickman 1993), northern coastal scrub and coniferous forests (Munz and Keck 1959), and Broadleaved upland forest, Closed-cone coniferous forest, Coastal prairie, Coastal scrub, Marshes and Swamps (freshwater), and North Coast coniferous forest (CNPS 2001). Elevation range includes five to 335 meters (CNPS 2001).

Coast lily is known from Mendocino, Marin, and Sonoma counties. It may also occur in San Francisco County, and it has been extirpated from San Mateo County. Coast lily is known from the Albion, Comptche, Elk, Eureka Hill, Fort Bragg, Gualala, Inglenook, Mathison Peak, Mendocino, Noyo Hill, Point Arena, Saunders Reef, and Westport USGS 7.5' quadrangles in Mendocino county. It is known from several locations on the western part of JDSF near closed cone forest or transition to north coast conifer forest.

Population status and trend for this species are unknown. Primary threats include road maintenance, urbanization, horticultural collecting, and habitat fragmentation (CNPS 2001). Illegal dumping and invasive plants also threaten occurrences on JDSF. Impacts associated with timber harvest and recreation activities could affect this species through habitat modification and direct injury to plants. *L. maritimum* hybridizes with *L. pardalinum* ssp. *pardalinum*.

***Lycopodium clavatum* - Running-pine**

Running-pine is a creeping, decumbent perennial herb of the club-moss family (Lycopodiaceae). Stems are branching with small, scale-like, sterile leaves that are spirally arranged and often root at nodes or internodes. Plants reproduce by spores. Sporophylls are born on erect stems in strobili. Plants produce strobili July through

August (CNPS 2001). Habitats include moist ground, swamps, rarely on trees (Hickman 1993), Douglas-fir forests (Munz and Keck 1959), moist coniferous woods and swamps (Hitchcock and Cronquist 1973), Marshes and Swamps, and mesic North Coast coniferous forest (CNPS 2001). Elevation range includes 60 to 790 meters (CNPS 2001).

Running-pine is known from Humboldt, Mendocino and northern Sonoma counties and is widespread outside of California. In Mendocino County, it is known from the Noyo Hill USGS 7.5' quadrangle and has been found on the JDSF in three locations. One occurrence is located on an old skid trail; two are associated with drainage structures along roads. All locations have a good canopy cover and are moist microsites.

Population status and trend are not known, but the species is considered threatened by timber harvest (CNPS 2001). Road maintenance and invasive plants are potential threats on JDSF. Activities associated with timber harvesting and road construction or maintenance could affect this species through habitat modification and direct injury to plants.

Microseris borealis - Northern microseris

Northern microseris is a perennial forb in the sunflower (Asteraceae) family. Its 15 to 60 cm high with only basal leaves. The compound flowers are borne in single heads comprised of all ray flowers with yellow ligules. Fruit has many brownish barbed papas bristles. It is found in wet meadows, fens, seeps, lower montane coniferous forest and sphagnum bogs.

Northern microseris is known in California only from Mendocino and Humboldt Counties. It is also found in Oregon, Washington and elsewhere. In Mendocino County, it is known from the Mendocino USGS 7.5' quadrangle. It is not known from the JDSF.

Population status and trend for Northern microseris are unknown. It is state listed as sensitive in Washington State. Pojar (1994) lists it as common from the outer coast from Vancouver Island North. Impacts to habitat likely include development, road construction and maintenance, and activities that significantly alter hydrologic conditions within watersheds. Activities associated with timber harvesting and road construction or maintenance could affect this species through habitat modification and direct injury to plants.

Mitella caulescens - Leafy-stemmed mitrewort

Leafy-stemmed mitrewort is a perennial, rhizomatous herbaceous member of the saxifrage family (Saxifragaceae). Plants with basal rosette of round to cordate, shallowly three to seven lobed, toothed leaves that are two to seven cm wide (Hickman 1993, Munz and Keck 1959). Cauline leaves are similar in shape to basal leaves but

are smaller. Flowers are yellow-green with a two to four mm wide hypanthium and bloom top to bottom from May through July (CNPS 2001, Hickman 1993, Munz and Keck 1959). This species is vegetative similar to other members of the genus and must be seen in flower for positive identification. Habitats include wet shaded areas (Hickman 1993), moist shaded places in Yellow-pine and Douglas-fir forests (Munz and Keck 1959), and Marshes and Swamps, mesic North Coast coniferous forest (CNPS 2001). Elevations range from 60 to 790 meters (CNPS 2001).

Leafy-stemmed mitrewort is distributed in Del Norte, Humboldt, Mendocino, Siskiyou, and Tehama counties. It is more widespread outside of California. In Mendocino county, occurrences are recorded for the Dutchmans Knoll, Elk, Hales Grove, Mathison Peak, Mendocino, and Navarro USGS 7.5' quadrangles. Leafy-stemmed mitrewort has been documented with two occurrences on the JDSF. Both are in riparian areas in the western part of the forest.

Population status and trend is being reviewed by CNPS (Golec, personal comm. 2004). The species may be threatened by timber harvest, urbanization, and road construction and maintenance. Activities associated with timber harvest may affect the species through habitat modification and direct injury to plants.

Monardella villosa* ssp. *globosa - **Robust monardella**

Robust monardella is an erect (50cm) unbranched perennial herb in the mint family (Lamiaceae). Outer bracts on the flower head are bent downward and the corolla is purple with a blooming period from Jun though July. Habitat includes: broadleaved upland forest (openings), chaparral (openings), cismontane woodland, valley and foothill grassland (CNPS, 2004). Elevation ranges from 100 to 600 meters (CNPS, 2004). The highest point on JDSF is 728 meters. Elevation generally not a defining character

This species is found in Alameda, Contra Costa, Humboldt, Mendocino, Lake, Napa, San Mateo, and Sonoma Counties. In Mendocino County, it is found in Noble Butte and Tan Oak Park USGS 7.5' quadrangles. It is not known from JDSF.

The current population status and trend are uncertain. Known from approximately ten occurrences. Most not recently seen. The species may be threatened by timber harvest, urbanization, and road construction and maintenance. Activities associated with timber harvest may affect the species through habitat modification and direct injury to plants.

***Pinus contorta* ssp. *bolanderi* - Bolander's beach pine**

Bolander's beach pine is a small, evergreen, closed-cone, coniferous tree in the pine family (Pinaceae). The trunk is typically less than two meters high (Hickman 1993). This subspecies is found in closed-cone coniferous forest, in podzolized soils (CNPS 2001), below 250 meters elevation (Hickman 1993).

Bolander's beach pine is found only in Mendocino County, within the Albion, Elk, Fort Bragg, Mathison Peak, Mendocino, and Noyo Hill USGS 7.5' Quadrangles (CNPS 2001). This species has been recorded both within and outside of JDSF in the western part of the forest in association with the pygmy forest community.

The current population status and trend are uncertain, but Bolander's beach pine is considered at risk to development and vehicles (CNPS 2001). Activities associated with timber harvesting and road construction or maintenance could affect this species through habitat modification and direct injury to plants. Long-term suppression of fire decreases recruitment of young trees by allowing build-up of leaf litter and debris on the ground, thereby reducing successful germination and seedling establishment. Frequent stand-replacing fires may eliminate Bolander's beach pine groves entirely if fire returns at an interval shorter than that required for young trees to produce seed-bearing cones.

Pleuropogon hooverianus - North Coast semaphore grass

North Coast semaphore grass is a member of the grass family (Poaceae). It has large, long (one to three dm), flat (five to seven mm wide), ribbon-like leaves and a raceme of widely-spaced spikelets (CDFG 1992c, Hitchcock and Chase 1971). The blooming period is May through August (CNPS 2001). This species is found in Broadleaved upland forest, Meadows, Marshes and Swamps (freshwater), North Coast coniferous forest, and Vernal pools / mesic (CNPS 2001). Elevation range includes 10 to 635 meters (CNPS 2001).

North Coast semaphore grass is known to occur in Marin, Sonoma, and Mendocino Counties (CDFG 1997). As many as 12 occurrences were previously identified (prior to the release of the CNPS 6th Inventory of Rare Plants), but surveys in the early 1990's failed to find the species at many of the sites (CDFG 1992c; CNPS 2001). In Mendocino County it is known from the Boonville, Cahto Peak, Comptche, Elledge Peak, Hopland, Laytonville, Longvale, Orrs Springs, Willits USGS 7.5' quadrangles (CNPS 2001). North Coast Semaphore grass has not been recorded in the JDSF.

Populations of North Coast semaphore grass are believed to be declining (CDFG 1992c). This species is reported as being threatened by roadside maintenance (CNPS 2001). Loss of habitat and disruption of natural hydrologic conditions due to development have been implicated in population declines of this species (CDFG 1992a). Activities associated with timber harvesting and road construction or maintenance could affect this species through habitat modification, habitat changes due to altered hydrologic regimes, and direct injury to plants.

***Rhynchospora alba* - White beaked-rush**

White beaked-rush is a rhizomatous perennial herb in the sedge family (Cyperaceae). Plants are generally one to seven dm tall with triangular erect stems (Munz and Keck 1959). Leaves are linear and sheathing. Inflorescences consist of one to four axillary capitate clusters of six to 20 spikelets. Spikelets are oblong, acute at both ends, four to six mm long, and contain sterile, staminate, and bisexual flowers. Flowers have 10 to 12 perianth bristles that are stiff, downwardly barbed, and about as long as the achenes. Plants flower from July to August (CNPS 2001). Habitats include Bogs and fens, Meadows, Marshes and Swamps (CNPS 2001), Yellow Pine Forest, Mixed Evergreen Forest, and Northern Coastal Scrub (Munz and Keck 1959). Elevation range includes 60 to 2040 meters (CNPS 2001).

White beaked-rush is known from Del Norte [?], Inyo [?], Lassen, Mendocino, Mariposa [?], Nevada [?], Plumas, Sonoma, and Trinity counties and is widespread outside of California (CNPS 2001). It is known from the Fort Bragg, Inglenook, Mathison Peak, and Mendocino USGS 7.5' quadrangles in Mendocino County. It is not known from any locations on the JDSF.

Population status and trend for this species are unknown. Impacts associated with timber harvest and recreation activities could affect this species through habitat modification and direct injury to plants.

***Sanguisorba officinalis* - Great burnet**

Great burnet is a rhizomatous perennial herb in the rose family (Rosaceae). Plants are generally 50 to 140 cm tall with erect stems (Hickman 1993). Leaves are alternate, once odd-pinnate, and have 3 to 6 toothed leaflets per side. The largest leaflet blade is 25 to 50 cm and ovate–oblong. Inflorescences are generally 12 to 20 mm long, seven to 10 mm wide, elliptic-ovoid, and have more than 20 flowers. Sepals are dark purplish and two to 3.5 mm long. Plants flower from July to October (CNPS 2001). Habitats include Bogs and fens, Broadleaved upland forest, Meadows, Marshes and Swamps, North Coast coniferous forest, Riparian forest / often serpentinite (CNPS 2001), and streams (Hickman 1993). Elevation range includes 60 to 1400 meters (CNPS 2001).

Great burnet is known from Del Norte, Humboldt, and Mendocino counties and is widespread outside of California (CNPS 2001). It is known from the Albion, Cahto Peak, Laytonville, Longvale, Mendocino, and Ukiah USGS 7.5' quadrangles in Mendocino County. It is not known from any locations on the JDSF.

Population status and trend for this species are unknown. Impacts associated with timber harvest and recreation activities could affect this species through habitat modification and direct injury to plants.

***Senecio bolanderi* ssp. *bolanderi* - Seacoast ragwort**

Seacoast ragwort is a rhizomatous perennial herb in the sunflower family (Asteraceae). Plants are one to five dm tall and are glabrous or nearly so (Hickman 1993, Munz and Keck 1959). Basal leaves are approximately one to three cm, round-cordate or subcordate, and generally palmately lobulate with toothed lobes; cauline leaves are also lobed and reduced upwards (Hickman 1993, Munz and Keck 1959). Inflorescences have radiate heads with yellow flowers. Plants flower from June to July (CNPS 2001). Habitats include Coastal scrub, North Coast coniferous forest (CNPS 2001), wet cliffs, and open forest (Hickman 1993). Elevation range includes 30 to 650 meters (CNPS 2001).

Seacoast ragwort is known from Del Norte, Humboldt, and Mendocino counties and is also known from Oregon and Washington. It is known from the Mendocino USGS 7.5' quadrangle in Mendocino County. It is not known from any locations on the JDSF.

Population status and trend for this species are unknown. The Mendocino County occurrence was recently relocated. Impacts associated with timber harvest and recreation activities could affect this species through habitat modification and direct injury to plants.

***Sidalcea calycosa* ssp. *rhizomata* - Point Reyes checkerbloom**

Point Reyes checkerbloom is a rhizomatous perennial herb in the mallow family (Malvaceae). Plants have erect or ascending succulent stems, 3 to 5 dm high, and are glabrous or minutely hirsute above (Munz and Keck 1959). Basal leaves are three to 10 cm wide, shallowly incised, and cauline leaves are divided into seven to 11 broadly cuneate divisions. This subspecies is apparently easily distinguished from others by its large, fused, ciliate bracts (Hickman 1993). Plants flower from April to September (CNPS 2001). Habitats include Marshes and Swamps (freshwater, near coast; Hickman 1993) and among tussocks of sedge and rush (Munz and Keck 1959). Elevation range includes three to 75 meters (CNPS 2001).

Point Reyes checkerbloom is known from Mendocino, Marin, and Sonoma counties (CNPS 2001). It is known from the Albion, Elk, and Saunders Reef USGS 7.5' quadrangles in Mendocino County. It is not known from any locations on the JDSF.

Population status and trend for this species are unknown. Impacts associated with timber harvest and recreation activities could affect this species through habitat modification and direct injury to plants.

***Sidalcea malachroides* - Maple-leaved checkerbloom**

Maple-leaved checkerbloom is a perennial or subshrub in the mallow family (Malvaceae). Plants arise from a woody caudex and are harshly bristly and stellate throughout (Hickman 1993). Leaf blades, which are coarsely dentate, are often described as grape-like and can be confused with pink-flowering currant (*Ribes sanguineum* var. *glutinosum*) or thimbleberry (*Rubus parviflorus*) leaves. Flowers can be bisexual, staminate, or pistillate, and plants can have flowers of all one type or be mixed. Flowers have white or purple-tinged petals and are densely clustered in many-branched panicles. Plants flower from April to August (CNPS 2001). Habitats include Broadleaved upland forest, Coastal prairie, Coastal scrub, North Coast coniferous forest / often in disturbed areas (CNPS 2001), and woodlands and clearings near the coast (Hickman 1993). Elevation range includes two to 700 meters (CNPS 2001).

Maple-leaved checkerbloom is known from Del Norte, Humboldt, Mendocino, Monterey, Santa Clara, Santa Cruz, and Sonoma counties, and it has been extirpated in Oregon (CNPS 2001). It is known from the Albion, Bear Harbor, Comptche, Dutchmans Knoll, Gualala, Inglenook, Mallo Pass Creek, Noyo Hill, Point Arena, Westport USGS 7.5' quadrangles in Mendocino county. It is not known from any locations on the JDSF.

Population status and trend for this species are unknown. Impacts associated with timber harvest and recreation activities could affect this species through habitat modification and direct injury to plants. Maple-leaved checkerbloom is a colonizing species. In both Mendocino and Humboldt County this species has been observed growing along dirt roads, skid trails, forest openings, and forest margins. It is infrequently found in heavily vegetated areas. It may be a colonizer of disturbed soils that is eventually shaded out.

***Sidalcea malviflora* ssp. *purpurea* - Purple stemmed checkerbloom**

Purple stemmed checkerbloom is a rhizomatous perennial herb in the mallow family (Malvaceae). Plants are more or less purple-tinted, especially at the base, stipules, and calyx, and are less than 6 dm with simple leaves (Hickman 1993). Lowest leaves are coarsely crenate, unlobed, less than two cm wide, and (all leaves are) bristly on both sides. The calyx is sparsely fine-stellate with some coarser bristles. Plants flower in May (CNPS 2001). Habitats include Broadleaved upland forest and Coastal prairie from 15 to 65 meters in elevation (CNPS 2001) and open coastal forest at less than 50 meters in elevation (Hickman 1993).

Purple stemmed checkerbloom is known from Mendocino, Marin [?], San Mateo, and Sonoma Counties (CNPS 2001). It is known from the Fort Bragg USGS 7.5' quadrangle in Mendocino County. It is not known from any locations on the JDSF.

Population status and trend for this species are unknown. Impacts associated with timber harvest and recreation activities could affect this species through habitat modification and direct injury to plants.

Usnea longissima – Long-beard lichen

Long beard lichen is long (15-35 cm or more) hair lichen in the family Usneaceae. It is a pale yellowish-green, consisting of a single, unbranched (or sparsely branched) central strand and numerous short lateral branchlets; white central cord becoming in part exposed (decorticate). Soredia are absent. It spreads primarily by wind blown fragments (Pojar and Mackinnon, 1994). Found on a variety of trees including big leaf maple, oaks, ash, Douglas-fir, and bay in the "redwood zone". Habitat includes; north coast coniferous forest and broadleafed upland forest. Some reports describe sites along ridge tops. Elevation ranges from 0 to 600 meters.

Mendocino County quads include Yorkville, Bear Harbor, Dutchman's Knoll, Hales Grove, Nobel Butte, Orr Springs, Elk, Mallo Pass creek, Inglenook, Percy, and Matheson Peak USGS 7.5' quadrangles. This species has been found on the forest at three locations in upland North Coast Conifer forest on JDSF. Two occurrences are in older second growth with some old growth residuals. The third occurrence is primarily on small (< 16 in) Douglas-fir with some old hardwoods nearby.

This widely distributed species is ranked as G4 but is threatened by air pollutions in some areas. Currently it is a State Rank 3.1 based on low numbers of festooned trees and vulnerability of habitat and global rank 4. Impacts associated with timber harvest and recreation activities could affect this species through habitat modification and direct injury to plants.

Viburnum ellipticum - Oval-leaved viburnum

Oval-leaved viburnum is a slender generally hairy deciduous shrub in the honeysuckle (Caprifoliaceae) family. Leaves are simple opposite with three veins. Flowers are in clusters with small white flowers. Fruit is a drupe with one seed. Habitats include chaparral, cismontane woodland, lower montane coniferous forest, and yellow pine forest generally on north facing slopes. Elevation ranges from 215 to 140 meters.

Oval-leaved viburnum is known from Fresno, Contra Costa, Eldorado, Shasta, Napa , Sonoma , Mendocino and Humboldt Counties and in Oregon and Washington state. In Mendocino County is known from the Bell Springs, Leggett, Tan-Oak Park and Hopland USGS 7.5'. It is not known from any locations on the JDSF.

Population status and trend for this species are unknown. It is listed as a CNPS 2 status plant in California but is not considered rare elsewhere. Impacts associated with

timber harvest and recreation activities could affect this species through habitat modification and direct injury to plants.

APPENDIX 7B-3
POTENTIAL PLANTS OF INTEREST FOR JACKSON DEMONSTRATION STATE FOREST AND ADJACENT ANALYSIS AREA AND RATIONALE FOR INCLUSION OF SPECIES IN LIST OF PLANT SPECIES POTENTIALLY OCCURRING ON JACKSON DEMONSTRATION STATE FOREST.

Scientific/Common Name	CNPS	R-E-D	State	Federal	Decision and Rationale
ABRONIA UMBELLATA SSP. BREVIFLORA "pink sand-verbena"	1B	2-3-2	None	None	Unlikely (restricted to coast)
AGROSTIS BLASDALEI "Blasdale's bent grass"	1B	3-2-3	None	None	Unlikely (coastal prairie, coastal dunes, coastal bluff scrub)
ALISMA GRAMINEUM "narrow-leaved water-plantain"	2	3-2-1	None	None	Unlikely (ponds, ditches, freshwater marshes and swamps)
ARCTOSTAPHYLOS MENDOCINOENSIS "pygmy manzanita"	1B	3-2-3	None	None	Known
ASTRAGALUS AGNICIDUS "Humboldt milk-vetch"	1B	3-3-3	CE	None	Known
BLENNOSPERMA NANUM VAR. ROBUSTUM "Point Reyes blennosperma"	1B	3-2-3	CR	None	Unlikely (coastal prairie, dunes)
BOSCHNIAKIA HOOKERI "Small groundcone"	2	3-1-1	None	None	Likely (closed-cone coniferous forest intergrading with north coast coniferous forest)
CALAMAGROSTIS CRASSIGLUMIS "Thurber's reed grass"	2	3-3-1	None	None	Possible (marshes and swamps, elevation may limit)
CAMPANULA CALIFORNICA "swamp harebell"	1B	2-2-3	None	None	Known
CAREX ARCTA "northern clustered sedge"	2	2-2-1	None	None	Likely (Bogs and fens, mesic North Coast coniferous forest)
CAREX CALIFORNICA "California sedge"	2	3-1-1	None	None	Known
CAREX COMOSA "bristly sedge"	2	3-3-1	None	None	Possible (marshes and swamps, lake margins, coastal prairie, and valley & foothill grassland)
CAREX LIVIDA "livid sedge"	1A	*	None	None	Possible (Known from one collection in Mendocino County but considered extirpated from CA)
CAREX LYNGBYEI "Lyngbye's sedge"	2	2-2-1	None	None	Unlikely (Immediate coast)
CAREX SALINIFORMIS "deceiving sedge"	1B	2-2-3	None	None	Possible (coastal prairie, coastal scrub, meadows, marshes, swamps)
CAREX VIRIDULA VAR. VIRIDULA "green sedge"	2	3-1-1	None	None	Likely (bogs, fens, marshes, swamps (freshwater), mesic north coast coniferous forest)
CASTILLEJA AFFINIS SSP. LITORALIS "Oregon coast Indian paintbrush"	2	2-2-1	None	None	Unlikely (coastal bluff scrub, coastal dunes, coastal scrub/sandy)
CASTILLEJA AMBIGUA SSP. HUMBOLDTIENSIS "Humboldt Bay owl's-clover"	1B	2-2-3	None	None	Unlikely (coastal salt marshes and swamps)
CASTILLEJA MENDOCINENSIS "Mendocino coast Indian paintbrush"	1B	2-2-3	None	None	Unlikely (costal: coastal bluff scrub, coastal dunes, prairie)

Scientific/Common Name	CNPS	R-E-D	State	Federal	Decision and Rationale
CHORIZANTHE HOWELLII "Howell's spineflower"	1B	3-2-3	CT	FE	Unlikely (coastal dunes, prairie, and scrub/sandy)
CLARKIA AMOENA SSP. WHITNEYI "Whitney's farewell-to-spring"	1B	3-3-3	None	None	Unlikely (coastal bluff scrub, coastal scrub)
COLLINSIA CORYMBOSA "round-headed Chinese houses"	1B	2-2-3	None	None	Unlikely (coastal dunes)
CUPRESSUS GOVENIANA SSP. PIGMAEA "pygmy cypress"	1B	2-2-3	None	None	Known
ERIGERON SUPPLEX "supple daisy"	1B	3-2-3	None	None	Possible (coastal bluff scrub, coastal prairie)
ERYSIMUM MENZIESII SSP. MENZIESII "Menzies's wallflower"	1B	3-3-3	CE	FE	Unlikely (coastal dunes)
ERYTHRONIUM REVOLUTUM "coast fawn lily"	2	2-2-1	None	None	Likely (margins of swamps and bogs in redwood and mixed evergreen forest stream banks)
FRITILLARIA RODERICKII "Roderick's fritillary"	1B	3-3-3	CE	None	Possible (coastal bluff scrub, coastal prairie, and valley and foothill grassland)
GILIA CAPITATA SSP. PACIFICA "Pacific gilia"	1B	2-2-2	None	None	Possible (coastal bluff scrub, coastal prairie)
GILIA MILLEFOLIATA "dark-eyed gilia"	1B	2-2-2	None	None	Unlikely (coastal dunes)
GLYCERIA GRANDIS "American manna grass"	2	3-1-1	None	None	Possible (bogs, fens, meadows, seeps, marshes, swamps, streambanks, lake margins)
HESPEROLINON ADENOPHYLLUM "glandular western flax"	1B	2-2-3	None	None	Possible (chaparral, cismontane woodland, valley and foothill grasslands/serpentine)
HORKELIA MARINENSIS "Point Reyes horkelia"	1B	3-2-3	None	None	Unlikely (coastal dune, coastal bluff scrub, coastal prairie)
HORKELIA TENUILOBA "thin lobbed horkelia"	1B	2-2-3	None	None	Possible (chaparral, coastal scrub, broadleaved upland forest, valley & foothill grassland)
JUNCUS SUPINIFORMIS "hair-leaved rush"	2	2-2-2	None	None	Likely (marshes, ponds, ditches bogs and fens, closed-cone pine forest)
LASTHENIA MACRANTHA SSP. BAKERI "Baker's goldfields"	1B	2-2-3	None	None	Likely (grassy forest openings, closed-cone pine forest, coastal scrub)
LASTHENIA MACRANTHA SSP. MACRANTHA "perennial goldfields"	1B	2-2-3	None	None	Unlikely (coastal scrub, dunes, and bluff scrub, coastal strand)
LILIUM MARITIMUM "coast lily"	1B	2-3-3	None	None	Known
LIMNANTHES BAKERI "Baker's meadowfoam"	1B	3-3-3	CR	None	Unlikely (vernal pools; known distribution is over ridge from JDSF)
LUPINUS MILO-BAKERI "Milo Baker's lupine"	1B	2-3-3	SE	None	Unlikely (valley & foothill grassland, cismontane woodland)
LYCOPODIUM CLAVATUM "running-pine club moss"	2	2-1-1	None	None	Known
MICROSERIS BOREALIS "northern microseris"	2	3-3-1	None	None	Possible (bogs and fens, lower montane coniferous forest,

Scientific/Common Name	CNPS	R-E-D	State	Federal	Decision and Rationale
					meadows/mesic. Known elevations>JDSF)
MITELLA CAULESCENS "leafy-stemmed mitrewort"	2	2-1-1	None	None	Known
NAVARRETIA LEUCOCEPHALA SSP. BAKERI "Baker's navarretia"	1B	2-3-3	None	None	Unlikely (valley & foothill grassland cismontane woodland)
PHACELIA INSULARIS VAR. CONTINENTIS "North Coast phacelia"	1B	3-2-3	None	None	Unlikely (coastal dunes, and coastal bluff scrub)
PINUS CONTORTA SSP. BOLANDERI "Bolander's beach pine"	1B	2-2-3	None	None	Known
PLEUROPOGON HOOVERIANUS "North Coast semaphore grass"	1B	3-3-3	CR	None	Likely (broadleaved upland forest, meadows, marshes, swamps, north coast coniferous forest, vernal pools)
POTAMOGETON EPIHYDRUS SSP. NUTTALLII "Nuttall's pondweed"	2	2-2-1	None	None	Unlikely (freshwater marshes and swamps)
PUCCINELLIA PUMILA "dwarf alkali grass"	2	3-2-1	None	None	Unlikely (coastal salt marshes and swamps)
RHYNCHOSPORA ALBA "white beaked-rush"	2	2-2-1	None	None	Possible (bogs, fens, meadows, marshes swamps, yellow pine forest, mixed evergreen forest, and northern coastal scrub)
SANGUISORBA OFFICINALIS "great burnet"	2	2-2-1	None	None	Likely (bogs, fens, meadows, marshes, swamps, riparian forest, broadleaved upland forest, north coast coniferous forest)
SENECIO BOLANDERI VAR. BOLANDERI "seacoast ragwort"	2	2-2-1	None	None	Likely (coastal scrub, north coast coniferous forest)
SIDALCEA CALYCOSA SSP. RHIZOMATA "Point Reyes checkerbloom"	1B	2-2-3	None	None	Possible (costal marshes and swamps)
SIDALCEA MALACHROIDES "maple-leaved checkerbloom"	1B	2-2-2	None	None	Likely (broadleaved upland forest, coastal prairie, coastal scrub, north coast coniferous forest)
SIDALCEA MALVIFLORA SSP. PURPUREA "purple-stemmed checkerbloom"	1B	2-2-3	None		Likely (broadleaved upland forest, coastal prairie)
TRIQUETRELLA CALIFORNICA "n/a"	1B	3-2-2	None	None	Unlikely (coastal bluff scrub, scrub)
USNEA LONGISSIMA “Long-beard lichen”	na	na	None	None	Known.
VIBURNUM ELLIPTICUM "oval-leaved viburnum"	2	2-1-1	None	None	Possible (chaparral, cismontane woodland, lower montane coniferous forest, occurrences generally well inland)
VIOLA PALUSTRIS "marsh violet"	2	3-2-1	None	None	Unlikely (bogs and fens)

Key **Known:** Known from JDDSF with habitat information in previous appendix. On Special Concern List (Table 14) 12/04.
Likely: Habitat or microsite seems to match JDSF available habitat. On Special Concern List (Table 14) 12/04.
Possible: May have some potential to occur on JDSF. On Special Concern List (Table 14) 12/04.
Unlikely: Low probability that this species could occur on JDSF. Not placed on Special Concern List (Table 14) 12/04.

Appendix 7B-4
POTENTIAL RESOURCES FOR SPECIES ACCOUNTS

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